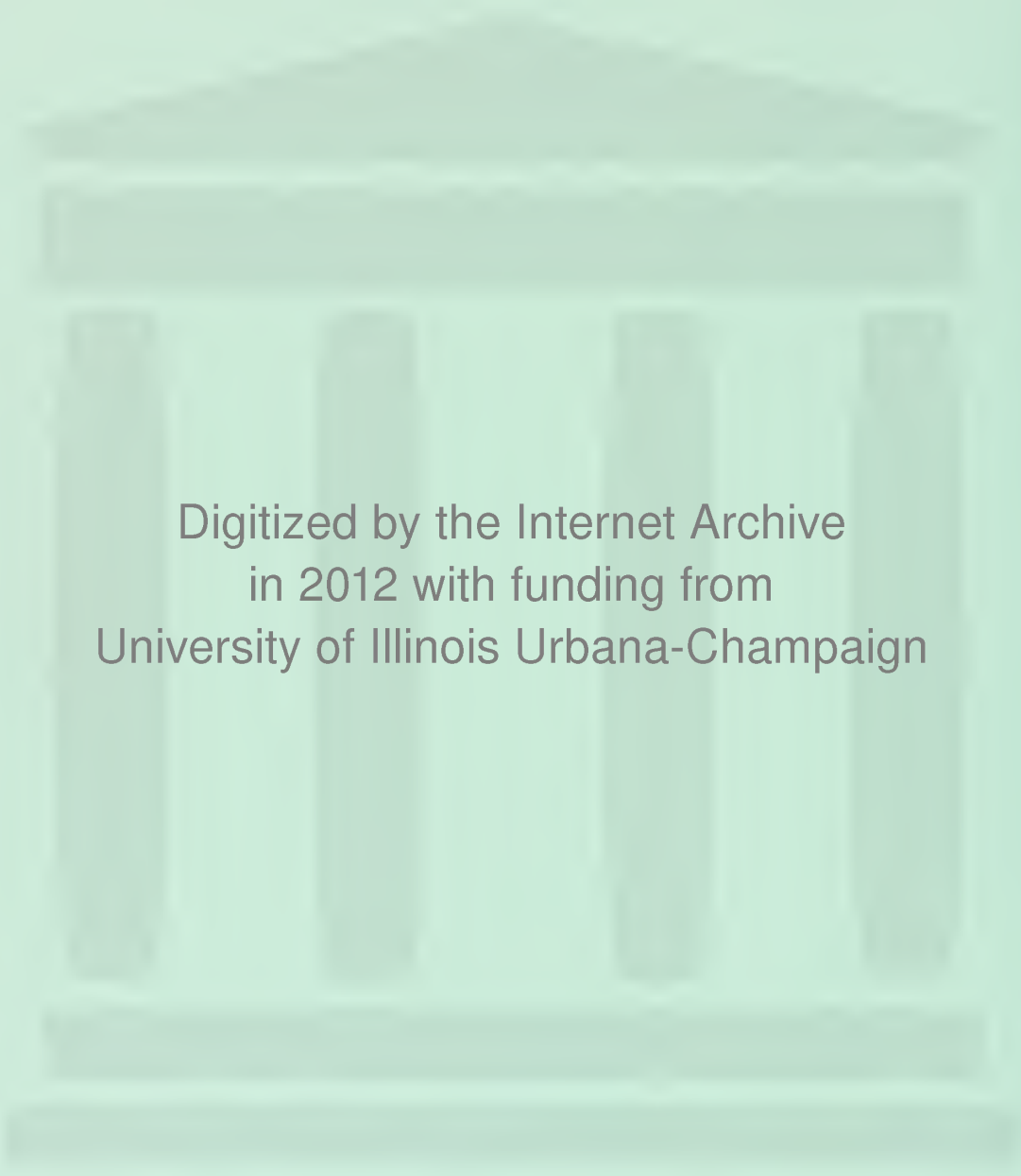




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Faculty Working Papers

**EFFECTS OF INFORMATION PRESENTATION
ON STEREOTYPE DEVELOPMENT**

Manuel London and John R. Poplawski

#265

**College of Commerce and Business Administration
University of Illinois at Urbana-Champaign**

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Abstract

The development of stereotypes via information processing mechanisms were investigated by presenting subjects with information about two groups. The percentage of favorable to unfavorable information and the amount of information were varied prior to ratings of the groups and individual members of the groups. The hypothesis that the distinctiveness in amount and favorability of information would result in differential stereotypes about the two groups was not confirmed. The hypothesis that ratings of individual members of the groups would differ from group perceptions was supported. Sex differences, contrast effects, and factors affecting a rater's overall impression were also found. Implications of the results for personnel practices are discussed.

EFFECTS OF INFORMATION PRESENTATION
ON STEREOTYPE DEVELOPMENT

Selection, promotion, and other crucial personnel decisions are frequently made on the basis of an interviewer's or supervisor's impressions. Unfortunately, such judgments are influenced by characteristics of the rater as well as the ratee (cf., Klimoski & London, 1974). One source of systematic error is the stereotype held by the rater. While some stereotypes (e.g., beliefs about ethnic groups) emerge via social learning (Brigham, 1971), others are a result of experience (Zajonc, 1968). In the context of the employment interview, London and Hakel (1974) demonstrated that stereotypes of the "ideal applicant" and "expected typical applicant" could be induced by presenting information to subjects. The present study is a further test of the hypothesis that stereotypes can be acquired on the basis of purely cognitive, information processing mechanisms. The purpose is to better understand stereotype emergence and how it may be controlled.

In a recent study, Hamilton and Gifford (Note 1) presented subjects with behavioral statements about two groups. The groups differed from one another only in that fewer statements were presented about one group (the minority) than the other (the majority). More of the statements were favorable than unfavorable, with an identical percentage of favorable to unfavorable information in both groups. To avoid the influence of pre-established stereotypes, the groups were labeled A and B. Hamilton and Gifford found that the minority group was perceived as more unfavorable than the majority group. This supported the hypothesis of the formation of an illusory correlation--i.e., an erroneous inference resulting from the salience of co-occurring distinctive events (Chapman, 1967). The

distinctive events in the minority group were the fewer number of unfavorable statements and the lower amount of information.

In the current study, this research is extended by examining the effects of six conditions in which information about two groups is presented to a sample of subjects. The information is varied in the number of statements descriptive of each group and the number of favorable and unfavorable statements. In all cases, the percentage of favorable to unfavorable information remains the same in both groups. An attempt will be made to replicate Hamilton and Gifford's finding and to determine if a favorable stereotype emerges in the minority group when a lower percentage of favorable information is paired with a lower amount of information.

Another aim of the study is to investigate how group stereotypes affect perceptions of individual members of the groups. Feldman and Hilterman (1975) have suggested that general group stereotypes are probably not related to beliefs about particular members of a group, just as general attitude measures do not predict attitude or behavior toward any particular object (Azjen & Fishbein, 1973). To test this hypothesis several combinations of information are used to generate neutral, positive, and negative impressions about two groups. Differences between judgments of the groups and individual members of the groups are examined.

METHOD

Subjects

Two hundred forty students enrolled in an introductory course in organizational behavior participated in the study for credit. Half the subjects were male and half were female in each condition.

Development of Stimulus Materials

The information units for the study were selected from the pool of 730 items compiled by Hakel and Dunnette (1970). Ninety items, half moderately favorable, half moderately unfavorable, and all high in importance, were selected. The favorability of these items were then judged on 9-point scales by 32 students drawn from the same population as the sample for this study. The mean rating for each item was considered to be its scale value. Items with low standard deviations and appropriate mean values were selected. The final set consisted of 16 favorable items ($\bar{X} = 7.71$, $\bar{X}_{SD} = .97$) and 16 unfavorable items ($\bar{X} = 2.43$, $\bar{X}_{SD} = 1.40$).

Since the goal of the study was to examine the formation of stereotypes about two groups, actual minority and majority groups (e.g., blacks and whites) could not be used. In all likelihood, judgments of such groups would be biased by pre-established stereotypes. Therefore, two groups, labeled Company A and Company B, were constructed from items supposedly descriptive of employees within each firm.

The stimulus packet presented to the subjects consisted of a set of statements, each on a separate page. In the upper right hand corner of each page, the letter A or B designated that the statement was descriptive of an employee in Company A or B. The statements in each packet were presented in random order. Favorable and unfavorable items were randomly assigned to one of the two companies in each condition. In no case was the same item assigned to both companies in the same condition.

Six different combinations of information were formed. The distribution of items in each condition is presented in Table 1. In Condition I, the same number of statements were assigned to each company, half favorable and half unfavorable. In Condition II, two thirds of the items

were designated as descriptive of employees in Company A and one third was designated as descriptive of employees in Company B. Again, half the statements were favorable and half were unfavorable for each company. In Conditions III and IV, an equal number of statements were designated as descriptive of each group. However, the ratio of favorable to unfavorable statements for both companies was 2:1 in Condition III and 1:2 in Condition IV. In Conditions V and VI, both the information about the two groups and the ratio of favorable to unfavorable information were unequal. Two-thirds of the statements described employees of Company A while one-third described employees of Company B. The ratio of favorable to unfavorable information for both companies in Condition V was 2:1 while it was 1:2 in Condition VI.

 Insert Table 1 about here

In Condition V, the unfavorable information descriptive of Company B represents the pairing of distinctive events (a lower percentage of unfavorable information and a lower total amount of information about Company B). If an illusory correlation emerges, Company B should be perceived as more unfavorable than Company A. In Condition VI, the favorable information description of Company B represents the pairing of distinctive events (a lower percentage of favorable information and a lower total amount of information about Company B). Here, Company B should be perceived as more favorable than Company A. In all six conditions, however, there is no actual relationship between the difference in amount of information about the two groups and the difference in the percentage of favorable to unfavorable items.

Instructions and Procedures

Data collection sessions were held in a conference room with groups

of 15 to 25 students per session. When all students had arrived for the experiment, they were given a packet consisting of a printed instruction sheet, the stimulus materials, and the rating forms. The experimenter then read the following instructions aloud:

This is an experiment concerned with interpersonal perception in which the researcher is interested in the impressions people form of others on the basis of limited information.

Each of the statements on the following pages has been used by a supervisor to describe a subordinate. The company at which the subordinate works is given along with each statement. Supervisor's statements about employees were taken from two different companies, labeled A and B. (You need not know the exact means of the organizations. Also, the exact nature of the job performed by each worker is unimportant here except to know that the job is that of an office worker.)

Your task is to read each of the statements carefully, noting the company of the employee described by the statement. When you have finished, you will have learned something about the nature of the employees at each company.

The subjects were further instructed to read each statement once being sure not to skip any pages. Looking back and forth through the booklet was not permitted. The subjects were given 5 minutes to read the statements. The experimenter was present in the room and was sure that all subjects read the statements. While the time the subject viewed each statement was not controlled, this was assumed to be about equal across subjects in all conditions.

Dependent Measures

Immediately after reading the packet of statements, the subjects were

asked to rate their impressions of the employees of each company on a series of 30 8-point semantic differential scales. The bipolar adjectives were selected from items related to the dimensions of evaluation, potency, and activity (Osgood, Suci, & Tannenbaum, 1957) and the implicit personality theory dimensions of extroversion, emotional stability, agreeableness, conscientiousness, and culture (Hakel, 1974; Norman, 1963; Passini & Norman, 1966). Each a priori dimension was represented by three to five bipolar adjectives. The scales were arranged in random order and remained in the same order for all ratings. Following the semantic differential scales, subjects were asked to estimate the overall performance of the employees in the company on a 7-point scale ranging from Not Acceptable to Outstanding. An additional question asked subjects to rate their confidence in making this judgment on a 7-point scale ranging from very unconfident to very confident. Half the subjects in each condition rated Company A on all scales prior to Company B while the order was reversed for the other half of the subjects.

Following the group ratings, the subject was asked to read a paragraph describing how one employee working for either Company A or B spent part of his time during one day on the job. The employee was then rated on the set of scales used to rate the groups. A different paragraph describing an employee of the other company and a set of rating scales followed. Both paragraphs had been written to be of neutral favorability, and pre-testing made by a sample of students bore this out. The order in which the paragraphs were presented and the company assigned to each paragraph were counter-balanced within each order of the group ratings. In all cases, ratings of individuals followed the ratings of the groups so that individual ratings would not bias group stereotypes.

Analyses

A principal factor analysis followed by a varimax rotation was performed on the 30 semantic differential scales across the four ratings for the 240 participants. Factor indexes were calculated by averaging the responses to items with loadings of .50 or higher on each factor. 6 X 2 X 2 X 2 analyses of variance with repeated measures on the last two factors, were calculated on the dependent variables of overall performance, confidence, and the factor indexes. The independent variables were stimulus condition, sex, group-versus-individual, and Company A-versus-Company B respectively. Post hoc analyses were conducted using the Scheffé method (Hays, 1963). Stepwise regression analyses were used to examine the contribution of the factor indexes to the overall performance rating within each condition.

RESULTS

Three independent dimensions emerged from the factor analysis and varimax rotation of the 30 semantic differential scales. The analysis accounted for 90% of the total variance with 27 of the 30 items having loadings of .50 or greater. The first factor, accounting for 36% of the common variance, was labeled Ability to Succeed. Items loading highly were related predominantly to the a priori dimensions of evaluation (e.g., unsuccessful-successful), and conscientiousness (e.g., aimless-motivated). The second factor, labeled Dynamism, accounted for 33% of the common variance. This factor included items representing a coalescence of potency (e.g., powerless-powerful), activity (e.g., static-dynamic), and extroversion (e.g., shy-outgoing). The third factor, labeled Sociability, accounted for 31% of the common variance. Items loading highly on this factor were related to the a priori dimensions of extroversion (e.g., unsociable-sociable), agreeableness (e.g., uncooperative-cooperative), and emotional

stability (e.g., maladjusted-adjusted).

Table 2 presents the mean squares and significant F ratios derived from the analyses of variance on the dependent variables. Significant main effects emerged for the difference between the stimulus conditions and the difference between the average ratings for groups and individuals for the three factor indexes and the overall performance rating. In all cases, ratings were higher when the information in the stimulus condition was predominantly favorable and lowest when the information was predominantly unfavorable. Furthermore, ratings were consistently more positive for individuals than groups

 Insert Table 2 About Here

The analyses of the three factor indexes resulted in significant main effects for sex. In all cases, ratings by females were significantly more positive than ratings by males. The analysis of the confidence ratings indicated that all subjects expressed significantly more confidence in rating individuals ($\bar{X}=4.9$) than groups ($\bar{X}=4.2$). The significant sex by group-versus-individual by Company A-versus-Company B interaction for confidence ratings demonstrated that females were more lenient in rating individuals employed by Company A ($\bar{X}=5.1$) than were males ($\bar{X}=4.6$) regardless of stimulus condition. A similar, though nonsignificant, difference emerged for ratings of Company B. This male-female difference was not as marked in the confidence subjects expressed in the group ratings.

If illusory correlations had been induced, a positive stereotype would emerge for Company B under Condition VI and a negative stereotype would emerge for Company B under Condition V. This would require significant three-way interactions between the stimulus, group-versus-individual, and Company A-versus-Company B conditions. This interaction reached significance ($p<.05$) for only the Dynamism factor index. However, the direction of mean

differences did not support the hypothesis. In fact, post hoc analyses indicated that the group rating of Company B was significantly lower ($\bar{X} = 3.0$) than all other ratings and the difference between group ratings of Companies A and B ($\bar{X}_A - \bar{X}_B = 1.0$) significantly higher than the other differences between ratings under Condition VI where the emergence of a positive stereotype for Company B was expected. Thus, when most of the information descriptive of both groups was positive and the total amount of information in Company B was lower, the employees in Company B were perceived as significantly less dynamic than those in Company A. A subsequent test indicated that this difference was due to the context effect of presenting subjects with information about two groups simultaneously. When the information about Company A used in Condition VI was given to one sample of students ($n = 9$) and the information about Company B was given to another sample ($n = 8$), ratings of the two groups were not significantly different.

The stimulus by group-versus-individual interaction was significant for the overall performance rating and the Ability to Succeed and Sociability factor indexes. The means for these variables are presented in Table 3. The differences between ratings of groups and individuals was highest in Conditions IV and VI (i.e., when most of the information was unfavorable). Moreover, a contrast effect emerged for the overall rating under Condition IV. Here, the average rating of individuals ($\bar{X} = 4.1$) was significantly greater than the rating of individuals in Condition II ($\bar{X} = 3.6$) and greater (though not significantly so) than the individual ratings for the other conditions.

 Insert Table 3 about here

An additional finding stemming from this stimulus by group-versus-individual interaction for the overall rating and the Ability to Succeed and Sociability indexes is that subjects tended to be conservative in

judging the favorability of the groups with predominantly favorable information while they were more willing to negatively evaluate groups described in predominantly unfavorable terms. Although perceptions of groups were more positive when most of the information was favorable, mean ratings of individuals were always higher. The highest mean group rating was 5.2 for the factor scores (based on 8-point scales) and 4.0 for the overall rating (based on a 7-point scale). When the mean scores of the overall ratings were standardized and compared to the standardized mean values of the statements comprising the stimulus conditions, this inference was confirmed. Subjects consistently underestimated the favorability of groups in stimulus Conditions III and V and tended to overestimate the unfavorability of the groups in Conditions IV and VI.

Additional analyses of variance were conducted to test order effects (e.g., the interaction of time of ratings with company rated and stimulus condition). However, meaningful significant differences beyond those described above did not emerge.

The results of the regression analyses across the two group ratings and across the two individual ratings are presented in Table 4. In all cases, the major proportion of the variance in the overall ratings was accounted for by the Ability to Succeed factor index. When most of the information in the stimulus packet was favorable and there was an equal amount of information for both groups (Condition III), the Sociability factor index also entered the equation for both individual and group ratings. Dynamism entered the equations for the group ratings under Condition V and for the individual ratings under Conditions I and IV. The multiple Rs were higher for the prediction of individual ratings than the prediction of the group ratings in all Conditions but II and IV.

 Insert Table 4 about here

DISCUSSION

The hypothesis of an illusory correlation resulting from the salience of the co-occurrence of distinctive events was not confirmed. Rather, a high percentage of unfavorable information paired with a lower amount of information about one group (Condition VI) resulted in the emergence of a negative stereotype for that group on the dimension of Dynamism. While the amount of unfavorable information was not distinctive in this case, unfavorable information is generally given more weight than favorable information, perhaps since unfavorable information in general is a rarity and a signal of high risk (Hamilton & Huffman, 1971; Hamilton & Zanna, 1972). As a consequence, the presence of a predominant amount of unfavorable information may have been distinctive when paired with a lower total amount of information resulting in a negative stereotype of the minority group. However, this phenomenon occurred for only one factor index and Hamilton and Gifford's (Note 1) original finding was not replicated in Condition V, casting doubt on illusory correlations as an explanation of stereotype development via information processing. A study increasing the distinctiveness of favorable and unfavorable information by varying the ratio (e.g., 4:1 compared to 2:1) might be more successful. Research varying favorability and amount of information may be extended further by examining differences in perceptions between groups when the percentage of favorable to unfavorable information is not identical in both groups. Context effects resulting from presenting information about one group alone compared to presenting information about a group in conjunction with one or more other groups is an additional area for future investigation.

The hypothesis of a difference between group and individual perceptions

was confirmed. Individuals tended to be evaluated neutrally although consistently more positively than groups, and subjects expressed higher confidence in rating individuals than groups. In one case, individuals were evaluated more positively when the perceptions of the groups were lowest. Thus, individuals seem to be evaluated on their own merit although a negative group stereotype may result in a contrast effect working in favor of an individual who does not clearly meet the stereotype. Perhaps minority group bias does not affect a rater's perceptions of individuals per se. Rather, bias may operate primarily when a person is not actually evaluated but is the victim of an explicit or implicit policy of an organization or a decision maker not to deal favorably with members of that group. In general, perceptions of groups may affect decisions related to those groups. The effects of group stereotypes on such decisions as joining an organization, supporting a fund raising drive, purchasing stock in a company, moving to a new neighborhood, etc. should be investigated.

The comparison of group ratings between conditions demonstrated that the positive value of groups with predominantly favorable information tends to be underestimated whereas the negative value of groups with predominantly unfavorable information tends to be overestimated. This is congruent with the findings in interview research that favorable information is not given enough weight (Hollmann, 1972) while unfavorable information is given more weight than it deserves (Carlson, 1972; London & Hakel, 1974; Webster, 1964). These errors may be expected when raters receive too little positive feedback for an accurate decision and too much negative feedback for an inaccurate decision. Increasing the raters' awareness of the benefit of a correct decision as well as the cost of an incorrect decision may improve rater accuracy.

Perceptions of groups and individuals were found to consist of three independent dimensions: Ability to Succeed, Dynamism, and Sociability. However, the regression analyses demonstrated that the factor index with the highest evaluative component, Ability to Succeed, was most predictive of the overall performance ratings. An analysis regressing an external criterion (e.g., job performance ratings) on factor indexes compared to the regression of the external criterion on overall judgments may demonstrate that mechanical combination takes more factors into account and may be more valid.

In general, ratings by females were higher than ratings by males, although males tended to be more lenient when the information about a group was predominantly unfavorable. The existence of consistent differences in judgments between the sexes may be corrected by standardizing the ratings. Further sex differences should be investigated by examining the possibility of differential validity between ratings made by males and females in different situations.

Reference Note

1. Hamilton, D. L., & Gifford, R. K. Illusory correlation in interpersonal perception: A cognitive basis of stereotypic judgments. Department of Psychology, Yale University, 1974.

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Footnote

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Table 1
Distribution of Statements According to
Favorability and Group Membership

	Condition I		Condition II		Condition III	
	Company A	Company B	Company A	Company B	Company A	Company B
Favorable	8	8	10	5	10	10
Unfavorable	8	8	10	5	5	5
	Condition IV		Condition V		Condition VI	
	Company A	Company B	Company A	Company B	Company A	Company B
Favorable	5	5	14	7	6	3
Unfavorable	10	10	6	3	14	7

Table 2

Analysis of Variance Summaries

Sources of Variance	df	Ability to Succeed		Dynamism		Sociability		Overall Rating		Confidence	
		MS	F	MS	F	MS	F	MS	F	MS	F
Stimulus Condition (A)	5	8.50	7.34***	2.90	3.06*	6.48	5.24***	4.21	3.52**	8.64	
Sex (B)	1	6.36	5.49*	7.01	7.41**	16.03	12.97**	.92		9.62	
Group-versus-Individual (C)	1	125.23	236.21***	12.47	19.85***	328.35	509.33***	99.86	150.23***	114.73	68.78***
Company A-versus-Company B (D)	1	2.13		22.81	9.30**	.03		1.32		.06	
A X B	5	2.22		1.74		2.57		1.71		5.54	
A X C	5	3.97	7.49***	.95		5.29	8.21***	3.22	4.85**	.95	
A X D	5	1.61		1.23		1.17		1.92		.64	
B X C	1	.06		.10		1.76		.33		3.76	
B X D	1	2.40		4.47		3.12		2.12		.80	
C X D	1	3.89		5.19		.00		2.80		.31	
A X B X C	5	.42		.28		1.18		.79		1.57	
A X B X D	5	.58		.13		1.58		.22		.11	
A X C X D	5	.96		4.71	3.44**	.59		2.24		.10	
B X C X D	1	.86		4.08		1.98		1.98		.31	4.51*
A X B X C X D	5	.09		.60		.48		1.13		.89	

Note. Further details of the ANOVAs are available from the author. Only significant F_s are given.

* $p < .05$

** $p < .01$

*** $p < .001$

Table 3

Means for the Significant Stimulus Condition
by Individual-versus-Group Interactions

Stimulus Conditions	Ability to Succeed		Sociability		Overall Rating	
	Group	Individual	Group	Individual	Group	Individual
	I	4.0	4.8	4.6	5.8	3.4
II	4.1	4.7	4.9	5.8	3.3	3.6
III	4.4	4.8	5.0	6.0	3.6	4.0
IV	3.8	4.9	4.5	5.9	3.0	4.1
V	4.7	5.1	5.2	6.0	3.6	4.0
VI	3.7	4.8	4.2	5.9	3.0	3.9

Table 4

Step-Wise Regression of the Overall Ratings on the
Factor Indexes for Group and Individual Ratings

Stimulus Condition	Group					Individual				
			β Factors ^a					β Factors ^a		
	R	R ²	1	2	3	R	R ²	1	2	3
I	.56*	.32	.56 ^b	- ^c	-	.74*	.54	.53	.26	-
II	.76*	.57	.76	-	-	.75*	.56	.75	-	-
III	.57*	.33	.32	-	.33	.79*	.63	.65	-	.20
IV	.62*	.38	.62	-	-	.61*	.37	.40	.23	-
V	.72*	.52	.64	.19	-	.75*	.57	.75	-	-
VI	.62*	.38	.62	-	-	.80*	.64	.80	-	-

^aFactor 1 = Ability to Succeed; Factor 2 = Dynamism; Factor 3 = Sociability

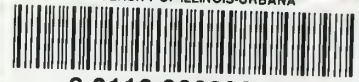
^bWeights included in the equation are significant at the .05 level or less.

^cDashes indicate the factor was not included in the equation.

*
p < .001



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